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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,415	05/04/2004	Brian Thinh-Vinh Tran	SVL920030099US1	3414

45727 7590 12/14/2007

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EXAMINER	
JOHNSON, JOHNESE T	

ART UNIT	PAPER NUMBER
2166	

MAIL DATE	DELIVERY MODE
12/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/709,415	TRAN ET AL.	
	Examiner	Art Unit	
	Johnese Johnson	2166	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

9/18/07

1)☒ Responsive to communication(s) filed on ~~18 July 2007~~.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-16 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. In view of the Appeal Brief filed on September 18, 2007, PROSECUTION IS HEREBY REOPENED. *A new ground of rejection is* set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. The previous claim rejections under 35 USC 101 have been overcome by the amendments.

3. Claim objections have been overcome by the amendments.

Claim Objections

4. Claim 9 is objected to because of the following informalities: the preamble of claim 9 is missing "execution by a computer or processor to perform the 'program code' ". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4, 9, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu (U.S. Pat. No. 7,274,671), in view of Bunton (U.S. Pat. No. 5,151,697), and further in view of O'Neil (U.S. Pat. No. 6,889,226).

Claims 1, 9, and 16:

Regarding claims 1 and 16, Hu discloses:

A computer-based (see col. 4, line 52) method comprising steps of:

a. choosing an initial base length with which to encode local identifiers tree (see abstract, line 8).

b. assigning a value of zero as a node identifier to a root node in a logical tree (see col. 3, lines 3-4).

c. sequentially assigning to descendants of a root node a local identifier having an even value and a length equal to said base length chosen in said choosing step, wherein said local identifiers are from leftmost children to rightmost children (see figure 3),

However, Hu does not disclose:

d. assigning node identifiers by concatenating local identifiers of all nodes along a path from a root node to a node to which a node identifier is currently being assigned

e. extending said initial base length if local identifier encoding combinations are exhausted before all descendants are assigned local identifiers

Bunton discloses:

d. assigning node identifiers by concatenating local identifiers of all nodes along a path from a root node to a node to which a node identifier is currently being assigned (see col. 5, lines 6-9).

It would have been obvious, at the time of the invention, having the teachings of Hu and Bunton before him/her, to combine the steps and features as disclosed by Hu with the steps and features as disclosed by Bunton to identify a string entry in the dictionary (see Bunton, see col. 5, lines 6-9).

However, the combination of Hu and Bunton does not disclose:

e. extending said initial base length if local identifier encoding combinations are exhausted before all descendants are assigned local identifiers

O'Neil discloses:

e. extending said initial base length when local identifier encoding combinations are exhausted before all descendants are assigned local identifiers (see fig. 4; wherein the combinations are extended from 2 digits to 3, i.e. (1.5 to 1.5.1).

It would have been obvious, at the time of the invention, having the teachings of Hu, Bunton, and O'Neil before him/her, to combine the step of assigning to all subsequent nodes, node identifiers generated by a concatenation of local identifiers of

all nodes along a path from a root node to a node to which a node identifier is currently being assigned with the step of assigning a value of zero as a node identifier to a root node in a logical tree and with the steps of choosing an initial base length with which to encode local identifiers tree, sequentially assigning to descendants of a root node a local identifier having an even value and a length equal to said base length chosen in said choosing step, wherein said local identifiers are assigned in increasing value from leftmost children to rightmost children, and extending said initial base length if local identifier encoding combinations are exhausted before all descendants are assigned local identifiers to identify a nodes location relative to existing nodes in the tree and to provide a mechanism for representing hierarchical data in a non-hierarchical data structure (see O'Neil, col. 1, lines 38-39).

Claim 2:

Regarding claim 2; Hu, as modified, discloses:

wherein inserting a node into an existing tree does not require change to existing node identifiers (see O'Neil, paragraph [0050], lines 16-19, and 1-11; wherein a node is inserted between nodes after a tree has been constructed (existing tree) and only assigns the inserted node an identifier (does not require change)).

Claim 3:

Regarding claim 3, Hu, as modified, also discloses:

wherein a node is inserted between a first node and a second node having consecutive local identifiers (see O'Neil, paragraph [0049]14-15).

Claim 4:

Regarding claim 4, Hu, as modified, discloses:

wherein said inserted node is assigned a local identifier having a string length longer than string length of said first node (see O'Neil, paragraph [0050], lines 27-29; wherein node 610 has a longer string length than node 608).

Claims 5 and 10:

HU, as modified, also discloses:

wherein assigning said node identifier to an inserted node comprises the following steps:

a. determining whether node to be inserted is inserted as a first child, between two existing siblings, or as a last child under a single parent node (see col. 1, line 67 and col. 2, line 1; wherein before a node can be placed into a tree, the position has to be determined whether as a first child, between siblings, or as a last child),

b. if said node to be inserted is inserted as a first child under said single parent node (see O'Neil col. 1, line 67 and col. 2, line 1; wherein before a node can be placed into a tree, the position has to be determined i.e. as a first child),

i. checking last byte of an existing first child (see O'Neil col. 13, lines 45-49),

ii. when the value of said last byte is not the smallest even number, then an even

number greater than zero and less than the value of said last byte is selected to generate a local identifier of said node to be inserted (see O'Neil col. 15, lines 8-9), else

iii. when the value of said last byte of an existing first child is the smallest even number, generating a local identifier for said node to be inserted by replacing said last byte of said existing first child by an odd number to generate a local identifier and extending node identifier of said existing first child by a byte having a value of any arbitrary even number (see O'Neil col. 15, lines 15-24; wherein an odd / even scheme is used/ discussed but the opposite scheme can be used),

c. when said node to be inserted is inserted between two existing siblings under said single parent node, determining whether the string length of node identifier of said first sibling

is less than, equal to, or greater than the string length of node identifier of said second sibling (see O'Neil col. 6, lines 58-67; wherein the length is determined before it is assigned), else

d. when said node to be inserted is inserted as a last child after all other children under said

single parent node, assigning to said node to be inserted an even local identifier greater than that of existing last child under said single parent node (see O'Neil fig. 6 wherein the inserted node (606) has a greater identifier than its parent (602)).

However, the combination of Hu and O'Neil does not disclose:

generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

Bunton discloses:

generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted (see col. 5, lines 6-9).

It would have been obvious, at the time of the invention, having the teachings of Hu, O'Neil, and Bunton before him/her, to combine the steps and features as disclosed by Hu, O'Neil, and Bunton to identify a string entry in the dictionary (see Bunton, see col. 5, lines 6-9).

Claims 6 and 11:

HU, as modified, also discloses:

a. checking when local identifier of said first sibling is the last available encoding value having a string length of the local identifier of said first sibling and being smaller in value than said local identifier of said second sibling (see O'Neil figure 6 wherein before assigning an identifier to node 606, both identifiers are checked and node 606 receives an identifier value that's between the values of both siblings),

b. when said local identifier of said

first sibling is the last combination having a string length of the local

identifier of said first sibling that is smaller in value than said local

identifier of said second sibling (see O'Neil col. 6, lines 58-67; wherein the length is checked before it is assigned),

i. when the local identifier of said second sibling is not the first available identifier having the string length of the local identifier of said second sibling that is greater than the value of said local identifier of said first sibling; an even-valued local identifier being less in value than said local identifier of said second sibling and having string length of local identifier of said second sibling is generated and assigned (see O'Neil col. 15, lines 15-24;), else

ii. generate a local identifier for said node to be inserted by replacing said last byte of said existing first child by an odd number and extending local identifier of said existing first child by a byte having a value of any arbitrary even number less in value than said last byte of said existing first child (see col. 15, lines 15-24), and

However, the combination of Hu and O'Neil does not disclose:

generate a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

Bunton discloses:

generate a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted (see col. 5, lines 6-9).

It would have been obvious, at the time of the invention, having the teachings of Hu, O'Neil, and Bunton before him/her, to combine the steps and features as disclosed

by Hu, O'Neil, and Bunton to identify a string entry in the dictionary (see Bunton, see col. 5, lines 6-9).

Claims 7 and 12:

HU, as modified, also discloses:

a. when the value of the local identifier of said first sibling plus two is less than the value of the local identifier of said second sibling, a local identifier for said node to be inserted takes on an even value greater than or equal to the value of said local identifier of first sibling plus two and less than the value of the local identifier of said second sibling (see O'Neil col. 9, lines 15-24 and 27-37; wherein the reference discloses a numbering scheme divisible by three but states that any scheme, that obeys the properties, can be used.)

b. when the string length of the local identifier of said first sibling plus two is equal to the string length of the local identifier of said second sibling, then the string length of the local identifier for said node to be inserted is extended wherein the length of the local identifier for the newly inserted node is the string length of said second sibling plus one, and the value of the first string length of said first sibling bytes is the node identifier of said first sibling plus one, and the new byte is an arbitrary even number less than the value of said last byte of the node identifier of said second sibling, and generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted (see O'Neil col. 9, lines 15-24 and 27-37; wherein

the reference discloses a numbering scheme divisible by three but states that any scheme, that obeys the properties, can be used.).

However, the combination of Hu and O'Neil does not disclose:

generate a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

Bunton discloses:

generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted (see col. 5, lines 6-9).

It would have been obvious, at the time of the invention, having the teachings of Hu, O'Neil, and Bunton before him/her, to combine the steps and features as disclosed by Hu, O'Neil, and Bunton to identify a string entry in the dictionary (see Bunton, see col. 5, lines 6-9).

Claims 8 and 13:

HU, as modified, also discloses:

a. when the local identifier of said second sibling is not the smallest value having the string length of said second sibling that is greater in value than the local identifier of said first

sibling, then a local identifier having a string length of said second sibling and having even value smaller than the value of the last byte of the node identifier of said second sibling is generated and assigned else (see O'Neil col. 9, lines 15-24 and 27-37; wherein the reference discloses a numbering scheme divisible by three but states that any scheme, that obeys the properties, can be used; also, see O'Neil fig. 6 wherein the inserted node (606) has a smaller value than that of the second sibling),

b. when the local identifier of said first sibling is not the largest value with the string length of the local identifier of said first sibling, one of the larger values for the new encoding is generated and assigned (see O'Neil fig. 6 wherein a larger value for the inserted node is generated and assigned), else

c. extending the local identifier of said first sibling by a length, by setting the last byte to the highest odd number and the new byte to an even number less than the value of the last byte, and generating a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted (see O'Neil fig.6 wherein the identifier of the inserted node (606) is extended by a length).

However, the combination of Hu and O'Neil does not disclose:

generate a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

generate a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted.

Bunton discloses:

generate a node identifier by a concatenation of local identifiers of all nodes along a path from a root node to said node to be inserted (see col. 5, lines 6-9).

It would have been obvious, at the time of the invention, having the teachings of Hu, O'Neil, and Bunton before him/her, to combine the steps and features as disclosed by Hu, O'Neil, and Bunton to identify a string entry in the dictionary (see Bunton, see col. 5, lines 6-9).

Claim 14:

HU, as modified, also discloses:

wherein said assigned local identifiers are assigned values based on variable-length (see O'Neil, col. 2, lines 9 and 10; wherein the scheme allows for shorter lengths which means that the length may be longer or shorter, i.e. variable) binary string encoding (see O'Neil, col. 9, lines 27-29; wherein the scheme can be any numbering scheme).

Claim 15:

HU, as modified, also discloses:

An article of manufacture comprising a computer usable medium having computer readable program code (see O'Neil col. 3, lines 18-19) embodied therein which implements prefix encoding node identifiers, as per claim 9, wherein said assigned local identifiers are assigned values based on variable-length (see O'Neil, col. 2, lines 9 and 10; wherein the scheme allows for shorter lengths which means that the length may be

longer or shorter, i.e. variable) binary string encoding (see O'Neil, col. 9, lines 27-29; wherein the scheme can be any numbering scheme).

Response to Arguments

7. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johnese Johnson whose telephone number is 571-270-1097. The examiner can normally be reached on 4/5/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 571-272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

27 November 2007
JJ

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER

NAS